

# Work Order ID 57356

April 6, 2010 8:56:17 AM



Page 1

Item ID: D206-642-541

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 06/04/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 16/04/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

*PH*

Date: 10-4-06

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D3274

D

IIN-D206-642

Rev M

0.00

100



DOCUMENT CONTROL

DC

0.00

Memo

Document Control

Photocopy bluefile & type labels per PPP D206-642-541

CHG003

N/A *[Signature]*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries

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Page 2

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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

110

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

\*\*\*\*VERIFY AND INSPECT THE MATERIAL PRIOR TO USE\*\*\*\*

1- Bend FWD end of tube using bend prog D3274 FWD dwg D3274, cut fwd  
end of tube with saw table setup D3274. *11/14/7*

2- remove fwd indexing ridge as per dwg D3274. Prepare for welding *11/14/14*

3- weld fwd cap as per dwg D3274 and QSI004  
AR Aluminum Rod Batch: *m112507/m113207*

4- grind fwd cap weld on top surface only

*BE 10/04/14*

*BE 10/04/14*

5- Cut AFT end of tube at 170.9" as per dwg D3274 and deburr end.

6-Drill Aft cap pilot hole using DT8025

7 -Cleco DT8025 in position and install pilot hole drill Jig DT8742A,B,C,D.  
Drill 3/16" pilot holes as per Dwg D3274

8 -Remove inner indexing ridge on aft end of skidtube as per Dwg D3274 scribe  
batch #

9 -Open aft end cap holes to Ø0.208" as per Dwg D3274. Deburr aft end.

*AWM 10-04-15*

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Page 3

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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120  HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1  Memo	0.00  0.00				1	-	-	Aug-4-15
130  QC Quality Control	QC3- Inspect Part Finish  Memo	0.00  0.00							8/10/04/16
140  QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00  0.00				40			

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 4

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

150

0.00



Skidtubes

Skidtubes

Memo

0.00

1-Open Ø0.313" and 0.375" crossbolt spacer holes using DT8743 as per Dwg D3274

2-Deburr crossbolt spacer holes as per Dwg D3274 and blow out chips from inside the tube

3-Bond web in place as per Dwg D3274 & QSI 015.

A/R ☐ Sikaflex-291 ☒ M112429 ☐

Sikaflex expire date: ☐ 10/8/30 ☐

Start: ☐ 10/4/27 ☐ Time: ☐ 1:50 ☐

Finish: ☐ 10/5/5 ☐ Time: ☐ 1030 ☐

(Adhere for 12 hours)

M 10/4/19

M 10/4/127

160

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

10/5/5

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 5

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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

170

0.00



Skidtubes

Skidtubes

Memo

0.00

1-Bend AFT end of tube using bend prog. D3274 AFT as per dwg D3274. Install drop pins in crossbolt spacer holes to maintain web position.

2- DRILL PILOT HOLES FOR WEARPLATES USING D3274-1T2  
OPEN HOLES TO .297" . Deburr

3-DRILL TOE PIN HOLE .640" DIA AS PER DWG USING DT8935 FWD  
END OF TUBE  
DEBURR INSIDE OF HOLE AS NECESSARY (DO NOT ENLARGE HOLES)  
REMOVE ANY FOREIGN OBJECTS INSIDE OF TUBES

4- Countersink crossbolt spacer holes as per Dwg D3274

5- prepare for welding

180



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

h = 3.0  
L = 4.6

MB  
10-05-05

DD

10-5-6

RE 10-05-10

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 6

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Reference:

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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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190

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-Insert D2649 & D3275-1 crossbolt spacers. Weld as per QSI 004 and Dwg D3274. Remember to back drill each hole before welding the other side. Use aluminum rod  
A/R ☐ Aluminum Rod M12507

P10 →

3-Grind cross bolt welds flush as per Dwg D3274.

4-Counterbore 5/16" x 0.750" deep as per Dwg D3274 and deburr.

M12/5/13

200

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

8/10/13

Ⓢ

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D206-642-541 PAR #: \_\_\_\_\_ Fault Category: Skitchuses NCR: Yes No DQA: \_\_\_\_\_ Date: 10/05/13  
 Resolution: rework Disposition: rework QA: N/C Closed: X Date: 10/06/17

NCR: <u>57356</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
<u>10/05/12</u>	<u>#190</u>	<u>After welding it was found that the x-bolt <sup>space</sup> D3275-1 is too short. (one side is fully welded) on the 1st APT hole</u>	<u>[Signature]</u>	<u>- Grind <del>out</del> weld flush - Drill out affected x-bolt space (1st from APT) - Repace D3275-1 B# <u>58179</u></u>	<u>BE 19/05/12</u>	<u>S 10/05/12</u>	<u>[Signature]</u>	<u>S 10/05/12</u>
		<u>RLC space D3275-1 B 58179 was machine too short</u>	<u>[Signature]</u>	<u>- re weld per assembly</u>	<u>BE 10/05/12</u>	<u>S 10/05/12</u>	<u>[Signature]</u>	<u>S 10/05/12</u>

NOTE: Date & initial all entries

# Work Order ID 57356

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Page 7

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Cust Item ID:

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Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

210 QC10- Inspect visual per QSI004- ground welds 0.00



QC

Memo

Quality Control

8060513

0.00



220 Pressure Wash per QSI005 4.3 0.00



HandFinish

Hand Finishing

Memo

10.05.14 Reacidine tube as per  
QSI 005 section 4.1.2.1  
do not acid etch

0.00

230 White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum 0.00



Powdercoat

Powder Coating

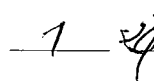
Memo

START TIME: 9:00AM  
OVEN TEMPERATURE: 320°-  
FINISH TIME: 9:30AM

0.00

del 10/05/17

BR 10-5-14.



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 8

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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240 	QC3- Inspect Part Finish	0.00							
QC Quality Control	Memo	0.00							① BK 10-5-20
250 	HandFinishing	0.00							
HandFinish Hand Finishing	Memo 1-Install Nut Plate as per Dwg D3274. Apply LPS-3 to Nut Plate and rivets. A/R <input type="checkbox"/> N/A <input type="checkbox"/> LPS-3 <input type="checkbox"/> 104251 PROCYON. 2-Install inserts as per Dwg D3274. Use a drop of Sikaflex inside insert holes a A/R <input type="checkbox"/> Sikaflex-291 <input type="checkbox"/> 112429 Sikaflex expire date: <input type="checkbox"/> 10/08.	0.00							① BK 10-5-20.
260 	QC5- Inspect part completeness to step on W/O	0.00							
QC Quality Control	Memo Inspect Nut Plate & Inserts	0.00							②

W/O:		WORK ORDER CHANGES					
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Page 9

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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

270

0.00



HAND FINISHING RESOURCE #1

HandFinish

Memo

0.00

Hand Finishing

1-Install wearpads & gaskets as per Dwg D3274.

2-Install ring as per Dwg D3274

A/R ☐ Sikaflex-291 ☒ *11/24/09*

Sikaflex expire date: ☐ *10/08*

3-Inspect for foreign objects as per QSI 024

4-Spray inside of tube on both sides of web with LPS-3

A/R LPS-3 Batch: \_\_\_\_\_

5-Install Aft Cap and seal with Sikaflex. Clean excess adhesive.

A/R ☐ Sikaflex-291 ☒ *11/24/09*

Sikaflex expire date: ☐ *10/08*

*1 PROCON BART. 104251*

*① BR 10-5-20.*

280

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

*Scalot/20*

Quality Control

*✓*

W/O:		WORK ORDER CHANGES					
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Page 10

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Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

290



Packaging

Identify as per dwg &amp; Stock Location: \_\_\_\_\_

0.00

PP

57878

10-6-16sf

Packaging

Memo

0.00

300



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

10/06/17 HJ

10-6-16sf

Memo

0.00

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**NOTE:** Date & initial all entries

# Picklist Print

April 6, 2010 8:56:21 AM

Page 1

Work Order ID: 57356

Parent Item: D206-642-541

Parent Item Name: Replacement Skidtube

Comments: IPP Rev:B 05.09.23 Revised per D206-642 Rev. J KJ/JLM  
 IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM  
 IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD  
 IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC

Start Date: 06/04/2010

Required Date: 16/04/2010

Start Qty: 1.00

Required Qty: 1.00

D2600-1-190

Manufactured No

110

Each

50.0000

1.0000



Extrusion Round 3" 206

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

LG

50

47575

50

D3285-1

Manufactured No

110

Each

164.0000

1.0000



Cap

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

LG

164

47635

15

52511

74

52647

75

D3282-041

Manufactured No

150

Each

4.0000

1.0000



Float Web (206L/407)

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

LG

4

52696

4

13 57539

① 11/04/27

1 11/04/17

1 BE 11/04/14

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
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**NOTE:** Date & initial all entries

# Picklist Print

April 6, 2010 8:56:21 AM

Page 2

Work Order ID: 57356

Parent Item: D206-642-541

Parent Item Name: Replacement Skidtube

Comments: IPP Rev:B 05.09.23 Revised per D206-642 Rev. J KJ/JLM  
 IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM  
 IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD  
 IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC

Start Date: 06/04/2010

Required Date: 16/04/2010

Start Qty: 1.00

Required Qty: 1.00

D2649 Manufactured No 190 Each 85.0000 12.0000



Cross Bolt Spacer

Warehouse Loc Qty Loc Code

Location

Main Warehouse

LG

85

55000

85

190

Each

20.0000

12.0000



5 258545 BE 10/05/10

7 BE 10/05/10

D3275-1



Crossbolt Spacer

Manufactured No

Warehouse Loc Qty Loc Code

Location

Main Warehouse

LG

20

53453

20

250

Each

219.0000

2.0000



x12

BE 10/05/10

CR3212-4-03



Cherry Rivet

Purchased No

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST311

219

111359

92

112314

127

2 BE 10-5-20

April 6, 2010 8:56:21 AM

Shop Packet Print

Page 2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

April 6, 2010 8:56:21 AM

Page 3

Work Order ID: 57356



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 06/04/2010

Required Date: 16/04/2010

Comments: IPP Rev:B 05.09.23 Revised per D206-642 Rev. J KJ/JLM  
 IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM  
 IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD  
 IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

D3415-041 Manufactured No 250 Each 75.0000 1.0000



Nut Plate



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

ST056 75

33842 ✓ 75

CCR264SS3-3 Purchased No 250 Each 726.0000 2.0000



Cherry Rivet



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

ST311 726

111548 4

112314 4

113539 92

113973 ✓ 626

ALS4-1032-130 Purchased No 250 Each 40.0000 78.0000



Insert



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

ST282 114654 40

110511 40

1 BK 10-5-20

2 BK 10-5-20

78. BK 10-5-20

April 6, 2010 8:56:21 AM

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Page 3

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

April 6, 2010 8:56:21 AM

Page 4

Work Order ID: 57356



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 06/04/2010

Required Date: 16/04/2010

Comments: IPP Rev:B 05.09.23 Revised per D206-642 Rev. J KJ/JLM  
 IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM  
 IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD  
 IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

D3536-15 Manufactured No 270 Each 19.0000 1.0000



Gasket



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

FP 19

51600 7

56055 12

D3536-23 Manufactured No 270 Each 7.0000 1.0000



Gasket



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

FP 7

53468 7

D3536-35 Manufactured No 270 Each 11.0000 1.0000



Gasket



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

FP 11

51628 11

1 BR 10-5-20

1 BR 10-5-20

1 BR 10-5-20

April 6, 2010 8:56:21 AM

Shop Packet Print

Page 4

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

April 6, 2010 8:56:21 AM

Page 5

Work Order ID: 57356



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 06/04/2010

Required Date: 16/04/2010

Comments: IPP Rev:B 05.09.23 Revised per D206-642 Rev. J KJ/JLM  
 IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM  
 IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD  
 IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

D3536-39 Manufactured No 270 Each 11.0000 1.0000



Gasket



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

FP 11

48161 1

51637 ✓ 10

D3535-15 Manufactured No 270 Each 14.0000 1.0000



Wearshoe



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

FP 14

53462 4

56053 ✓ 10

D3535-35 Manufactured No 270 Each 9.0000 1.0000



Wearshoe



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

FP 57528 9

51608 9

1 PR 10-5-20

1 PR 10-5-20

✓ PR 10-5-20

April 6, 2010 8:56:21 AM

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Page 5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

April 6, 2010 8:56:21 AM

Page 6

Work Order ID: 57356



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 06/04/2010

Required Date: 16/04/2010

Comments: IPP Rev:B 05.09.23 Revised per D206-642 Rev. J KJ/JLM  
 IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM  
 IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD  
 IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

D3535-39 Manufactured No 270 Each 9.0000 1.0000



Wearshoe



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

FP 9

51619 ✓ 9

D3535-23 Manufactured No 270 Each 14.0000 1.0000



Wearshoe



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

FP 14

53467 2

56054 ✓ 12

D3537-3 Manufactured No 270 Each 20.0000 1.0000



Wearpad



Warehouse Loc Qty Loc Code  
Location

Main Warehouse

FP 57512 20

35697 20

1 BL 10-5-20

1 BL 10-5-20

1 BL 10-5-20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

April 6, 2010 8:56:21 AM

Page 7

Work Order ID: 57356



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 06/04/2010

Required Date: 16/04/2010

Comments: IPP Rev:B 05.09.23 Revised per D206-642 Rev. J KJ/JLM  
IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM  
IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD  
IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

D3537-1 Manufactured No 270 Each 51.0000 9.0000



Wearpad

Warehouse Loc Qty Loc Code  
Location

Main Warehouse

FP 57.256 51  
55465 51

9 BL 10-5-20.

AN960C10L Purchased No 270 Each 0.0000 80.0000



washer

NAS 1149C0332R 114341

80 BL 10-5-20.

AN960C416 Purchased No 270 Each 377.0000 1.0000



washer

Warehouse Loc Qty Loc Code  
Location

Main Warehouse

ST346 377  
100993 377

1 BL 10-5-20.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

April 6, 2010 8:56:21 AM

Page 8

Work Order ID: 57356



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 06/04/2010

Required Date: 16/04/2010

Comments: IPP Rev:B 05.09.23 Revised per D206-642 Rev. J KJ/JLM  
 IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM  
 IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD  
 IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

D3672-1 Manufactured No 270 Each 1,589.000 2.0000



Phenolic Washer

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST077 1589

47628 89

51674 500

52505 1000

2 BR 10-5-20

AN3C4A Purchased No 270 Each 1,249.000 80.0000



BOLT

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST350 114523 1249

113226 248

114103 501

114108 500

80 BR 10-5-20

April 6, 2010 8:56:21 AM

Shop Packet Print

Page 8

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

April 6, 2010 8:56:21 AM

Page 9

Work Order ID: 57356



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 06/04/2010

Required Date: 16/04/2010

Comments: IPP Rev:B 05.09.23 Revised per D206-642 Rev. J KJ/JLM  
IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM  
IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD  
IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

AN4C5A Purchased No 270 Each 534.0000 1.0000



BOLT



Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST346

534

110552 ✓

34

112243

500

1 BR 10-5-20

D2646 Manufactured No 270 Each 35.0000 1.0000



Aft Cap



Warehouse Loc Qty Loc Code

Location

Main Warehouse

FP6

28

52663

28

Main Warehouse

fp7

7

52663 ✓

7

1 BR 10-5-20.

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

April 6, 2010 8:56:21 AM

Page 10

Work Order ID: 57356



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 06/04/2010

Required Date: 16/04/2010

Comments: IPP Rev:B 05.09.23 Revised per D206-642 Rev. J KJ/JLM  
IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM  
IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD  
IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

D3413-1

Manufactured No

270

Each

31.0000

1.0000



Ring

## Warehouse

## Loc Qty

## Loc Code

### Location

Main Warehouse

ST473

51586

53446

31

8

23

1 BR 10-5-20.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries





DESIGN <b>CP</b>	DRAWN BY <b>PH</b>	<b>DART AEROSPACE USA, INC.</b> PORT HADLOCK, WA	
CHECKED <b>[Signature]</b>	APPROVED <b>[Signature]</b>	DRAWING NO. <b>D3274</b>	REV. D SHEET 1 OF 4
DATE <b>06.12.19</b>		TITLE <b>SKIDTUBE ASSEMBLY</b>	SCALE NTS
<b>A</b>	<b>04.03.15</b>	<b>NEW ISSUE</b>	
<b>B</b>	<b>04.08.09</b>	<b>MOVE SADDLE HOLE: 42.14 WAS 42.76</b>	
<b>C</b>	<b>05.03.16</b>	<b>ADD -043; NEW INSERTS</b>	
<b>D</b>	<b>06.12.19</b>	<b>NEW INSERTS, SS WEARSHOE + GASKET</b>	

RELEASED  
07.02.12  
DEO ATTACHED

Qty -041	Qty -043	Part Number	Description
X		D3274-041	SKIDTUBE ASSEMBLY
	X	D3274-043	SKIDTUBE ASSEMBLY
1	1	D2600-1-240	EXTRUSION
1	1	D2646	AFT CAP
12	12	D2649	CROSS BOLT SPACER
12	37	D3275-1	CROSS BOLT SPACER
1	1	D3282-041	FLOAT WEB
1	1	D3285-1	CAP
1	1	D3413-1	RING
1	1	D3415-041	NUT PLATE
1	1	D3535-15	WEARSHOE
1	1	D3535-23	WEARSHOE
1	1	D3535-35	WEARSHOE
1	1	D3535-39	WEARSHOE
1	1	D3536-15	GASKET
1	1	D3536-23	GASKET
1	1	D3536-35	GASKET
1	1	D3536-39	GASKET
9	9	D3537-1	WEARPAD
1	1	D3537-3	WEARPAD
78	78	ALS7-1032-130	INSERT (or AKS4-1032-130, ALS4-1032-130, AELS-1032-130)
80	80	AN3C4A	BOLT
1	1	AN4C5A	BOLT
1	1	AN960C416	WASHER
80	80	AN960C10L	WASHER
2	2	CCR264SS3-3	RIVET
2	2	CR3212-4-03	RIVET
2	2	NAS1515H3L	WASHER

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 57359

B810-41-06

#### GENERAL NOTES:

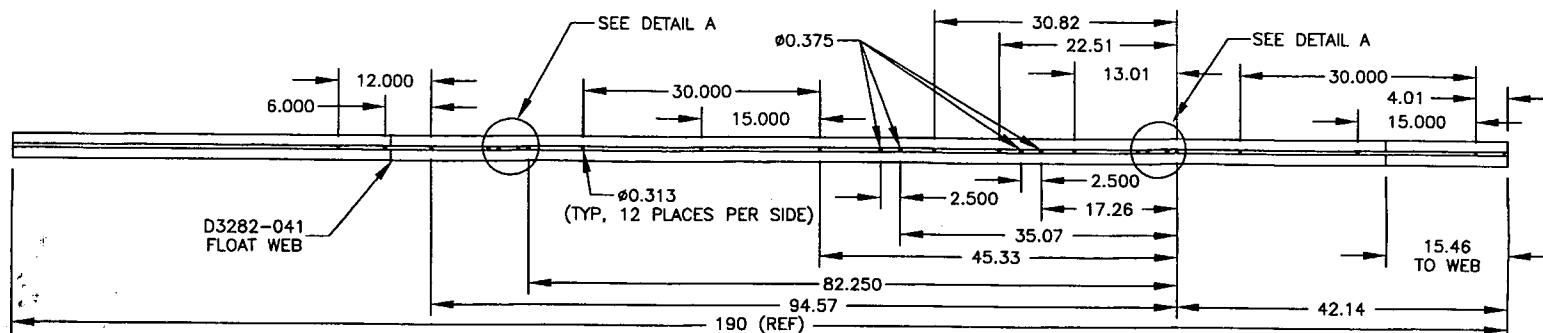
1. TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
2. DAMAGE TOLERANCE ON FWD BEND:  
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 7 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP TO 0.020 DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
3. ALL HOLES DRILLED ON CENTERLINES.
4. BOND D3282-041 FLOAT WEB INTO D3274-1/-3 OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015. ENSURE HOLES LINE-UP.
5. WELDING TO BE DONE PER DART QSI 004.
6. FINISH: - ACID ETCH, ALODINE ASSEMBLY PER DART QSI 005 4.1  
- POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
7. DRILL Ø0.297 HOLES FOR ALS7-1032-130 INSERTS USING DT3274-1T2 BEFORE FINISH. INSTALL ALS7-1032-130 INSERTS AFTER FINISH. SEAL WEARSHOE BOLTS WITH SIKAFLEX -241/-291.
8. SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.

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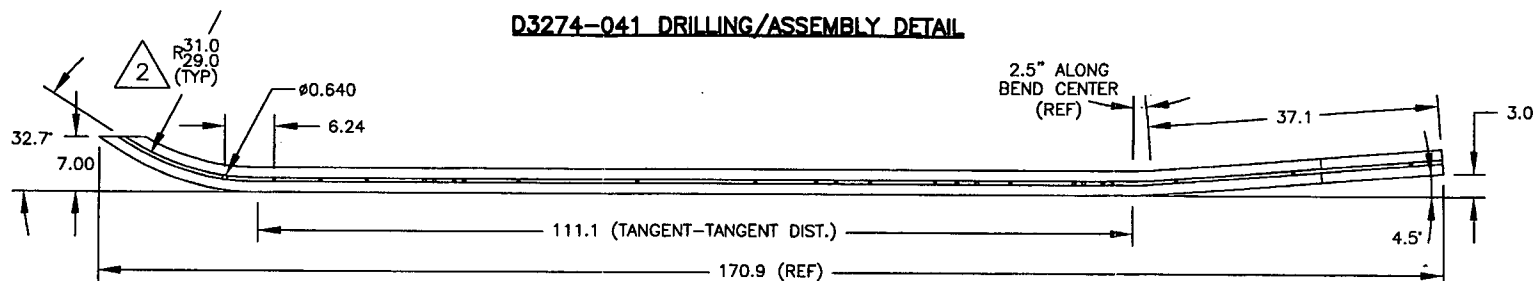
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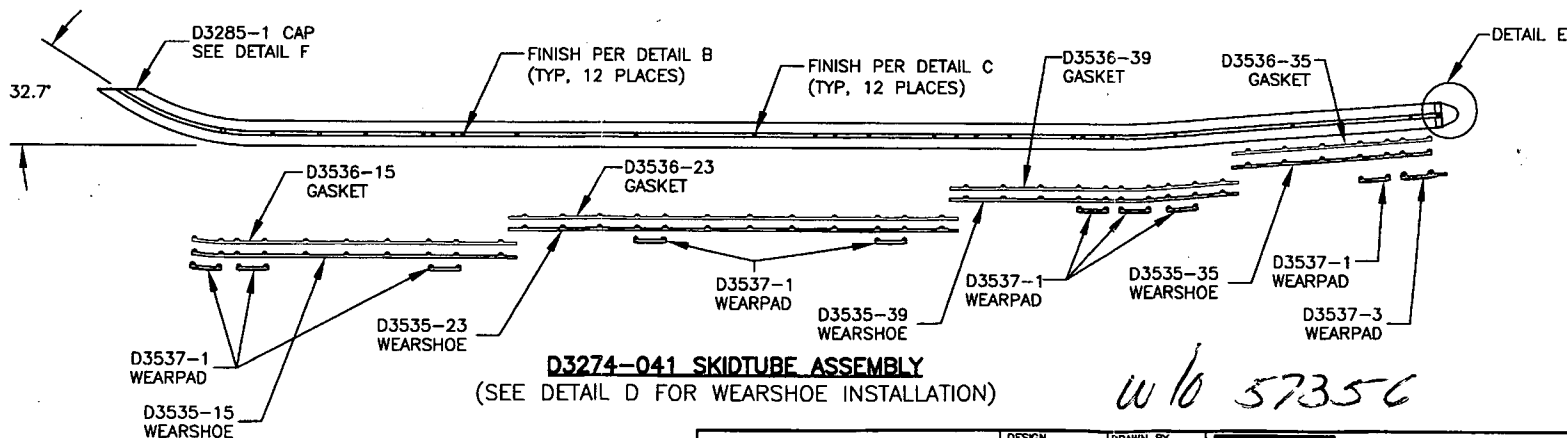
DEO ATTACHED



**D3274-041 DRILLING/ASSEMBLY DETAIL**



**D3274-041 BEND/DRILLING DETAIL**



**D3274-041 SKIDTUBE ASSEMBLY**  
(SEE DETAIL D FOR WEARSHOE INSTALLATION)

RELEASED

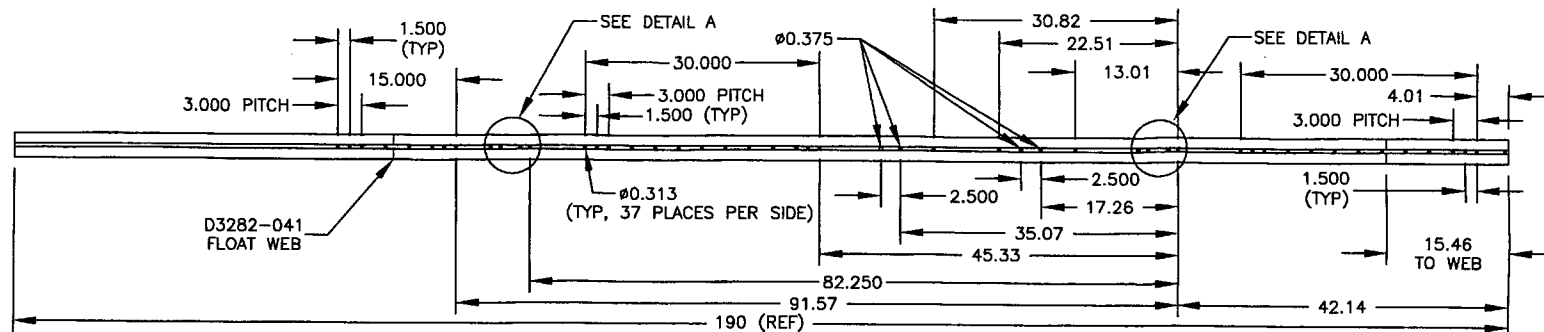
07.02.12

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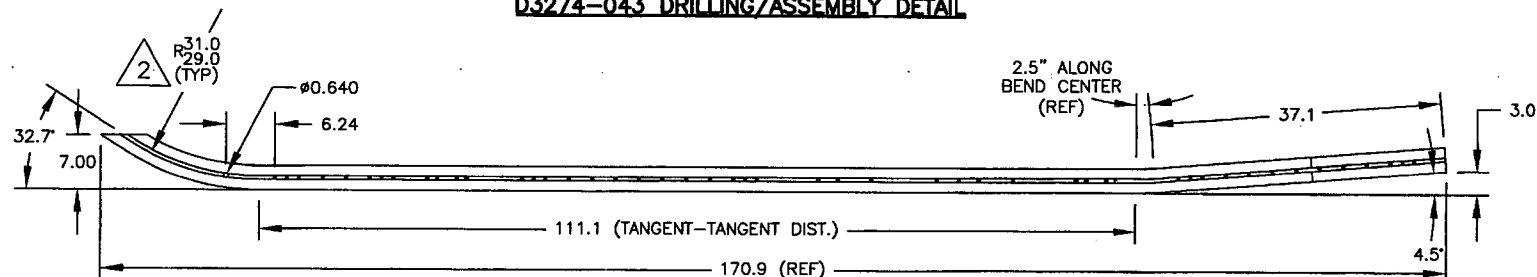
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DESIGN CP	DRAWN BY PH	<b>DART</b> DART AEROSPACE USA, INC. PORT HADLOCK, MA
CHECKED #	APPROVED #	DRAWING NO. D3274
DATE 06.12.19	TITLE SKIDTUBE ASSEMBLY	REV. D SHEET 2 OF 4 SCALE 1:15

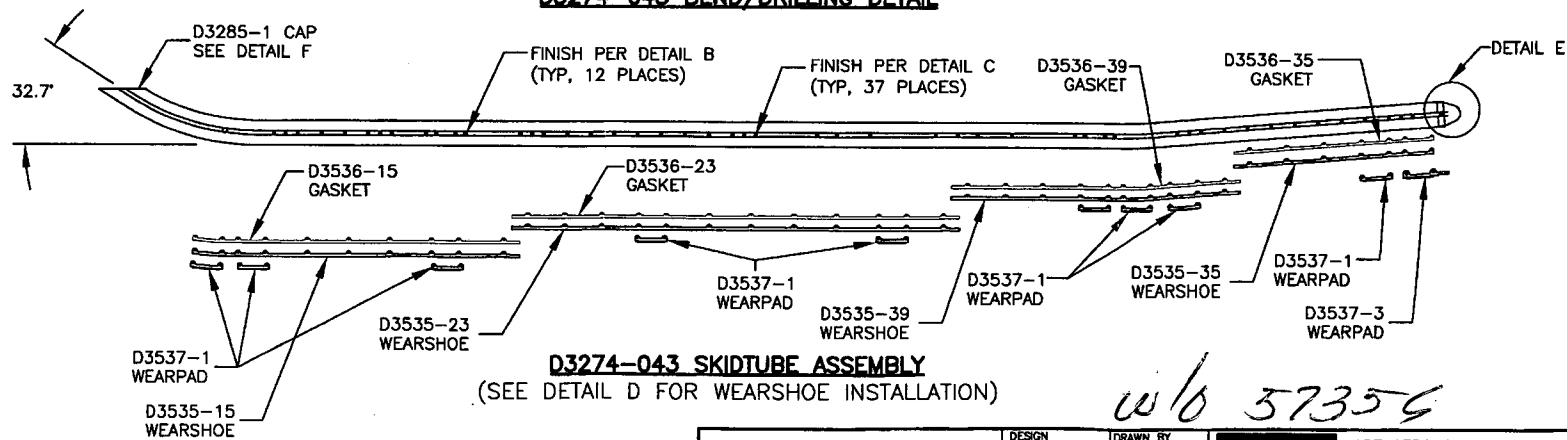
DEO ATTACHED



**D3274-043 DRILLING/ASSEMBLY DETAIL**



**D3274-043 BEND/DRILLING DETAIL**



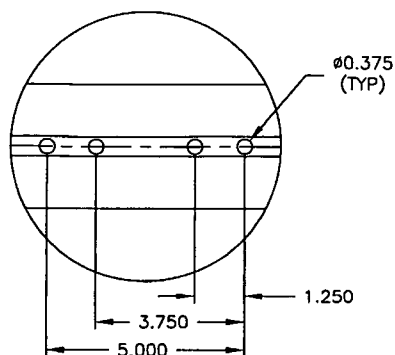
**D3274-043 SKIDTUBE ASSEMBLY**  
(SEE DETAIL D FOR WEARSHOE INSTALLATION)

RELEASED

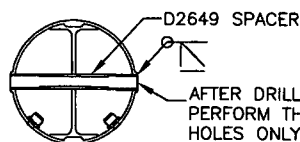
07-02-12

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DATE 06.12.19		TITLE SKIDTUBE ASSEMBLY		SCALE 1:15	

# **DETAIL A: DRILL DETAIL**

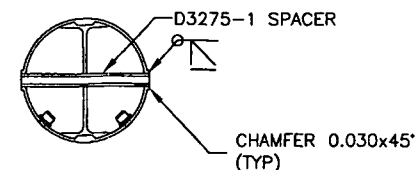


# **DETAIL B** FOR 0.375 HOLES ONLY

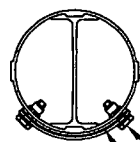


- AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR 0.375  
HOLES ONLY:
1. CHAMFER HOLE 0.030x45°
  2. INSERT D2649 SPACER
  3. WELD INTO PLACE AND GRIND FLUSH
  4. C'BORE TO 0.313x0.75 DEEP

# **DETAIL C** FOR 0.313 HOLES ONLY



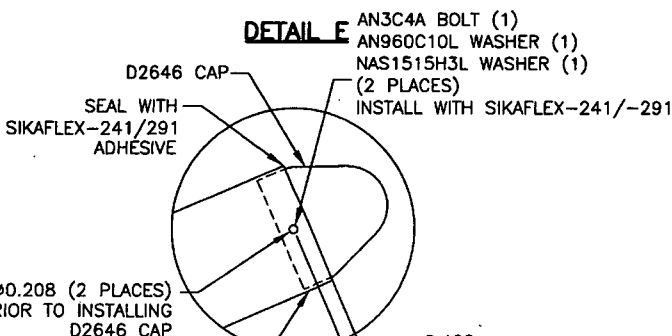
# **DETAIL D**



- ALS7-1032-130 INSERT (1)  
AN3C4A BOLT (1)  
AN960C10L WASHER (1)  
(78 PLACES)

GASKET/WEARSHOE/WEARPAD (REF)

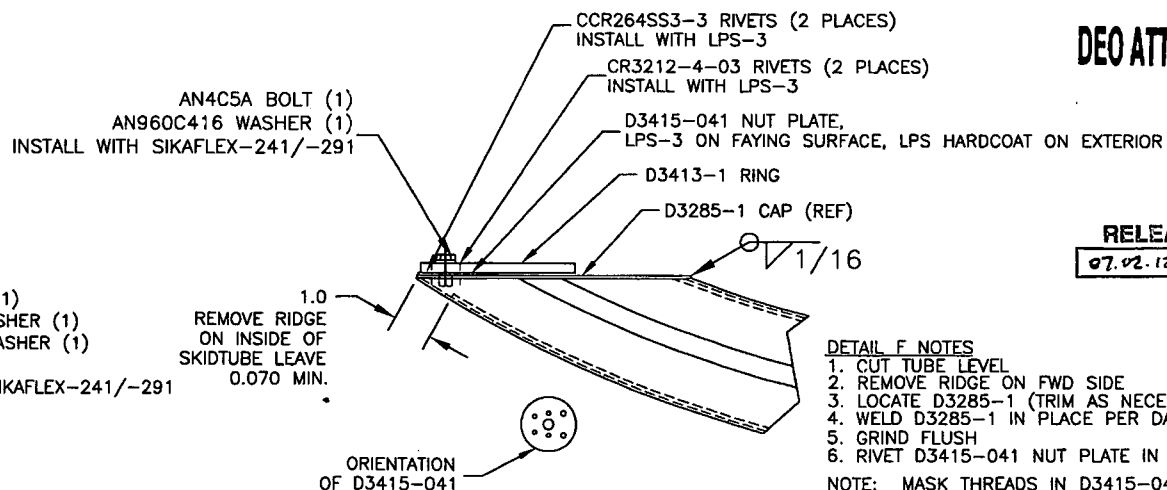
# **DETAIL E**



0.208 (2 PLACES)  
DRILL PRIOR TO INSTALLING  
D2646 CAP

BORE OUT END OF SKIDTUBE  
TO 0.75 DEPTH AND 0.070 WALL

# **DETAIL F: END FINISHING DETAIL**



# **DETAIL F NOTES**

1. CUT TUBE LEVEL
  2. REMOVE RIDGE ON FWD SIDE
  3. LOCATE D3285-1 (TRIM AS NECESSARY)
  4. WELD D3285-1 IN PLACE PER DART QSI 004
  5. GRIND FLUSH
  6. RIVET D3415-041 NUT PLATE IN PLACE
- NOTE: MASK THREADS IN D3415-041  
PRIOR TO FINISH

**DEO ATTACHED**

**RELEASED**

07.02.12

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		CHECKED	APPROVED	TITLE SKIDTUBE ASSEMBLY	SCALE 1:3
		DATE			
		06.12.19			

W/L 57356

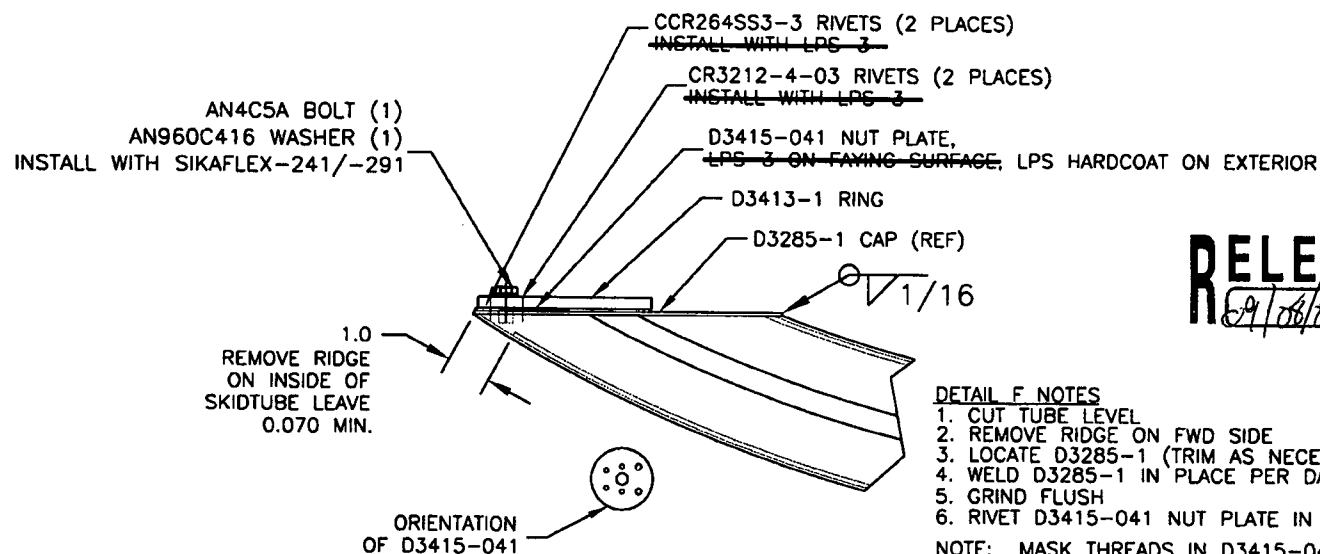
DRAWING NO. D3274	TITLE SKIDTUBE ASSEMBLY	REV. D	<b>DART AEROSPACE USA, INC</b>	D.E.O. NO. D3274-D-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>CP</i>	CHECKED <i>[Signature]</i>	MFG. APPR. <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DE APPR. <i>[Signature]</i>		
DATE 09.06.17	DATE 09.06.23	DATE 09/06/23	DATE 09/06/23	DATE 09.06.23		

LPS-3 IS NO LONGER USED DURING ASSEMBLY OF SKIDTUBE.

AMEND NOTE 8: "~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES 'LPS 3' AFTER FINISH AND INSTALLATION OF INSERTS.~~  
COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES 'LPS PROCYON' AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF  
POWDER COATING WITH MEK DEGREASER."

AMEND DETAIL F AS SHOWN:

### DETAIL F: END FINISHING DETAIL



#### DETAIL F NOTES

1. CUT TUBE LEVEL
2. REMOVE RIDGE ON FWD SIDE
3. LOCATE D3285-1 (TRIM AS NECESSARY)
4. WELD D3285-1 IN PLACE PER DART QSI 004
5. GRIND FLUSH
6. RIVET D3415-041 NUT PLATE IN PLACE

NOTE: MASK THREADS IN D3415-041  
PRIOR TO FINISH

*w/o 57354*

NO 230

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barclay Elliott  
Job number: 57356  
Part number: DAC6-642-541  
Description: Heat tube  
Welding Process: Tig[ ☒ ] Mig[ ☐ ]  
Base material: Aluminium  
Current: AC[ ☒ ] DC[ ☐ ]

TEST REQUIREMENTS AND RESULTS

Visual: pass[ ☒ ] fail[ ☐ ]  
Penetration: pass[ ☒ ] fail[ ☐ ]

UNACCEPTABLE

Cracks: pass[ ☒ ] fail[ ☐ ]  
Undercut: pass[ ☒ ] fail[ ☐ ]  
Pin holes: pass[ ☒ ] fail[ ☐ ]  
Overlap (cold lap): pass[ ☒ ] fail[ ☐ ]  
Porosity (surface): pass[ ☒ ] fail[ ☐ ]  
Coloration: pass[ ☒ ] fail[ ☐ ]

Qualifier Lat. Pol Date of Test Coupon 10.05.05

Welder Barclay Elliott Date of Test Coupon 10-05-05

The above named individual is qualified in accordance with AWS D17.1.2001 to weld